Book Reviews

Principles of Dispersal in Higher Plants by L. van der Pijl, vii plus 154 pages (11 being indices, 7 reference lists), 26 illustrations. Berlin—Heidelberg—New York: Springer-Verlag, 1969.

In 136 pages of text the author gives a compact yet wide-ranging account of the principles underlying dispersal of higher plants and the means by which this is brought about. He regards it chiefly from an ecological point of view, unlike the previous mainly morphological studies. Though the language at times requires considerable thought, the writer is, in the main, to be congratulated on his precise English. He wastes no words, uses many short sentences and, discussing principles, keeps examples to illustrate these to a minimum, usually one only. In an attempt to tidy up terminology and explain his own usages, the author reviews words used in earlier works. He also (rightly) roundly condemns fruit classification as it exists today but admits he himself could not do better. For those with little classical background, the going will be hard as terms multiply in this expanding subject, yet words such as ombrohydrochory and atelechory are necessary and convenient shorthand in this book and in whatever language the subject is discussed.

Diaspores or units of dispersal, are defined on pp. 8–12 and the relation between flowers, fruits and seeds is discussed in Chapter IV. Dispersal is dealt with first under the agents bringing it about; comprehensively covered under eleven types of agent, even the 'black-jack' is given a place (pp. 68 & 90). In sub-sections under the various agents, the means by which diaspores (or reproductive bodies of plants) attain dispersal are given. The following chapter discusses combination, limitation and co-operation in the process of dispersal and Chapter VIII gives the necessary corollary to dispersal—establishment. Evolution of the various organs of dispersal is next treated and a brief discussion of the seed is given. (The word angiosperm is criticised as inaccurate, the ovule rather than the seed being enclosed; dehiscence and escape are necessary for the seed. However, the author himself uses the phrase 'Megasporangia (or seeds)' on page 101, which seems a strange misuse of terminology by one otherwise so exact.)

Following this there is an interesting summary of the ecological development in leguminous fruits and finally, Chapter X deals with ' Man and his Plants'. Weeds are the chief of these anthropophytes and of all countries New Zealand seems to have the most, (about a thousand) mainly brought by man's activities.

The illustrations, whether photographs or line drawings, are very clear and aid the text; one photograph, however, seems reversed (fig. 26, p.130) and with the word 'Israël' misspelled. Other printer's or author's spelling errors are few—a scant dozen or so have been noticed together with one faulty page reference in the index (atelechory—p.31). As a textbook for Angiosperm biology, this companion volume to 'The Principles of Pollination Ecology' (Faegri and van der Pijl) is decidedly worthwhile and unique in its range and depth. The author acknowledges his indebtedness to Ridley's encyclopaedic 'The Dispersal of Plants Throughout the World' but rightly points to advances made since 1930. Though comprehensive and dealing with principles, this present work is not beyond intelligent observation to prove and to extend; it seems an essential text on university library shelves as well as elsewhere—South Africa has neglected the biology of its rich flora for too long.

A. Jacot Guillarmod

GRASS—A STORY OF FRANKENWALD by Edward Roux
Oxford: University Press, 1968, Price R5.25 (52s. 6d.)

Frankenwald lies 12 miles to the north of Johannesburg on the main Pretoria road. The future of Frankenwald as a research station is somewhat uncertain as it is probable that a new university campus will be established on this site. This book, telling the story of Frankenwald as a field research station of the University of the Witwatersrand is therefore most timely.

This is the story of a research station that has played a leading role in the fields of ecology and pasture management in Southern Africa, but though students and other research workers play important parts in the book, there is only one star—"Grass".

In a style that will please most readers, particularly non-botanists, the author discusses the origin of grass and the role it plays in the world today. Its evolution, morphology, physiology and ecology are presented simply and clearly and at no time does Professor Roux assume the reader to be a botanist.

He takes the reader on a quick journey through the Highveld as it was seen by the Voortrekkers. He reveals the effect man and his animals have had on the natural vegetation from the early "Stone Age" days up to the present.

The chapters that follow are based on the researches that were carried out at Frankenwald over a period of 35 years. Professor Roux uses the investigations of students as a vehicle for his biological excursions. His discussions on pre-rain flora, bird and animal life, termites and dung beetles, soil microbes and antibiotics are little masterpieces and the accompanying illustrations are excellent.

The theme that runs through the book is the ecological evergreen, secondary succession. Like the well constructed "Who Done It" the reader is presented with all the facts (experimental and otherwise) and in the penultimate chapter the author sums up all the evidence and then leads the reader to a possible conclusion. All ecologists will find the chapters on grassland succession both informative and provocative.

The South African Turf Research Station is sited at Frankenwald and its story is told in the chapter headed "Better Turf". Many of the findings from researches carried out here have led to better playing surfaces for the many sports conducted in South Africa.

The evergreen problems of veld burning, bush encroachment, soil structure, grazing and over-grazing, soil erosion and fertilizing veld are all given an airing and the value of the continuity in research is most apparent.

This is a book that will appeal to all persons interested in nature conservation while it is a must for all practising botanists and university students studying biology. The book is never dull or over-technical and has all the necessary requisites of a classic. It should have a wide and long-lasting appeal.

R. E. ALTONA